Amendments to th Claims

The listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently Amended) A hybrid device comprising:

a substrate;

a ~~micro-spring~~ spring interconnect formed on the substrate, the ~~micro-spring~~ spring interconnect including,

an elastic material that is operatively associated with a surface of the substrate including,

an anchor portion fixed to the substrate, and

a free portion spaced from the substrate, the free portion including a tip separated from the substrate; and

a sensor formed on the substrate, the sensor including an active layer and contacts, said active layer configured to sense light and be at least partially transparent to light at selected wavelengths,

said ~~micro-spring~~ spring interconnect and said sensor being integrated on the substrate.

2. (Previously Presented) The invention according to claim 1 wherein the hybrid device further includes at least one of a single light source, an array of lasers, and an array of light emitting diodes (LEDs), positioned to emit at least a portion of light through at least a portion of the sensor.

3. (Currently Amended) The invention according to claim 2 wherein the sensor is designed and aligned with at least one of the laser array and the LED array, to receive the emitted light from at least one of the single light source, some of the lasers of the laser array and some of the LEDs of the LED array.

4. (Previously Presented) The invention according to claim 2 wherein the sensor, including the active layer, is designed and aligned with at least one of the laser array and the LED array to receive and pass, through the active layer, an amount of the emitted light from a portion of at least one of the laser array and the LED array sufficient for a printing operation.

5. (Previously Presented) The invention according to claim 4 wherein the substrate is designed and aligned with at least one of the laser array and the LED array to receive and pass, through the active layer, an amount of the emitted light from a portion of at least one of the laser array and the LED array sufficient for a printing operation.

6. (Original) The invention according to claim 1 wherein the sensor is an array of sensors.

7. (Cancelled)

8. (Currently Amended) The invention according to claim 1 wherein the sensor and the ~~micro-spring~~ spring interconnect are comprised of materials which allow for integration of the ~~micro-spring~~ spring interconnect and the sensor on the single substrate during a manufacturing process, wherein at least one of the materials for the ~~micro-spring~~ spring interconnect and the sensor is the same.

9. (Currently Amended) The invention according to claim 1 wherein the sensor is comprised of,

a first transparent/conductive layer;

the active layer located on top of the first transparent/conductive layer;

a second transparent/conductive layer located on top of the active layer;

a passivation/release layer located over at least the first transparent/conductive layer and the second transparent/conductive layer;

a first [[vias]] via through the passivation/release layer to the first ~~and second~~ transparent/conductive ~~layers~~ layer;

a second via through the passivation/release layer to the second transparent/conductive layer; and

[[a]] first and second metal [[layer]] layers, deposited in the first and second vias, ~~connecting~~ providing contacts to the first and second transparent/conductive layers respectively ~~through the vias~~, wherein the metal [[layer]] layers [[acts]] act as signal lines to receive and carry signals from the active layer.

10. (Cancelled)

11. (Previously Presented) The invention according to claim 1 wherein the elastic material is a stressed metal layer having sub-layers of differing stress gradients.

12. (Currently Amended) The invention according to claim [[1]] 9, wherein the sensor further includes an absorption layer, located ~~immediately over the sensor~~ between the second transparent/conductive layer and the passivation/release layer, wherein the absorption layer absorbs unwanted visible light prior to being detected by the active layer.

13. (Previously Presented) The invention according to claim 9, wherein the active layer is a three layer element, wherein a first layer is a n+-doped amorphous silicon, the first layer being one of, but not limited to n+ phosphorous–doped amorphous silicon and n+ arsenic-doped silicon;

wherein a second layer is an intrinsic amorphous silicon;

wherein a third layer is a p+-doped amorphous silicon, the third layer being, but not limited to, p+ boron-doped amorphous silicon.

14. (Original) The invention according to claim 1 wherein a switch is located, between the sensor and the substrate, such that the sensor is an active semi-continuous sensor.

15. (Original) The invention according to claim 14 wherein the switch is a thin-film-transistor (TFT).

16. (Currently Amended) The invention according to claim 1 wherein the ~~micro-spring~~ spring interconnect is a plurality of ~~micro-spring~~ spring interconnects.

17. (Currently Amended) A hybrid device comprising:

~~at least one of~~ a laser ~~or LED~~ device capable of emitting light at a certain wavelength and including a plurality of lasers;

a substrate;

a ~~micro-spring~~ spring interconnect formed on the substrate, the ~~micro-spring~~ spring interconnect including,

an elastic material operatively associated with a surface of the substrate including,

an anchor portion fixed to the substrate, and

a free portion spaced from the substrate; and

a sensor formed on the substrate[[,]] in an integrated manner[[,]] with the ~~micro-spring~~ spring interconnect, the sensor including an active layer and contacts, wherein said substrate and said sensor, including the active layer, are at least partially transparent to light at the wavelength emitted by ~~at least one of~~ the laser ~~or the LED~~ device; and said at least one of the ~~laser aid~~ sensor and said at least one ~~micro-spring~~ spring interconnect being separately fabricated and aligned, such that at least a portion of the light emitted directly by ~~the at least one of~~ the laser ~~and LED~~ device is directed through at least a portion of the substrate and the active layer of the sensor.

18. (Cancelled)

19. (Currently Amended) The invention according to claim 17 wherein the sensor is sized such that each of the lasers ~~or LEDs emit~~ emits light at least partially through the sensor.

20. (Currently Amended) The invention according to claim 17 wherein the sensor is a plurality of sensors, sized such that a sub-group of the lasers ~~or the LEDs~~ may emit light through selected ones of the sensors.

21. (Currently Amended) The invention according to claim 19 wherein the lasers ~~or LEDs~~ are arranged as a printbar, and the ~~micro-spring~~ spring interconnect is in electrical contact with the printbar.

22. (Currently Amended) A calibration/printing system comprising:

a sensor configuration including a sensor element integrated on a substrate with a plurality of ~~micro-spring~~ spring interconnects;

a light source aligned with the sensor configuration such that at least a portion of the light directly from the light source is sensed and passed through the active layer of the sensor and at least a first of the ~~micro-spring~~ spring interconnects is in physical contact with a portion of the light source; and

a driver chip aligned with the sensor configuration and the light source such that at least a second of the ~~micro-spring~~ spring interconnects is in physical contact with a portion of the driver chip, and a communication path is formed between the light source and the driver chip by the at least first and second ~~micro-spring~~ spring interconnects.

23. (Previously Presented) The invention according to claim 22 wherein the driver chip further includes:

a comparator for comparing a sensor readout current from the sensor and a reference current;

a converter arrangement which converts the output of the comparator into digital data representing characteristics of the light source;

a set of low frequency shift registers configured to receive and store the digital data;

an activation signal selectively supplied to the light source, the activation signal designed to control operation of the light source to selectively emit light therefrom;

a driver designed to interpret the digital data as activation signal correction information for the activation signal;

a high frequency shift-register configured to receive and store digital image data from a source external to the driver chip; and

an enable/disable output signal from the high frequency shift-register to selectively supply the activation signal and light source correction information to the light source, wherein an amount of light emitted by the light source is controlled.

24. (Original) The invention according to claim 22 wherein the digital image data from the source external to the driver chip is supplied as high frequency bit stream data.

25. (Original) The invention according to claim 22 wherein the light source is a printbar having an array of light sources, and wherein the printbar is controlled to activate the light sources in a sequential manner to obtain calibration data to be stored in the driver.

26. (Currently Amended) A hybrid device comprising:

a ~~micro-spring~~ spring interconnect structure; and

at least two devices electrically connected by the interconnect structure wherein[[,]] one of the devices is a sensor, the sensor including:

a first transparent/conductive layer,

an active layer and contacts, said active layer sensing light and being located on top of the first transparent/conductive layer,

a second transparent/conductive layer located on top of the active layer,

a passivation/release layer located over at least the first transparent/conductive layer and the second transparent/conductive layer, and

an absorption layer, located between the second transparent/conductive layer and the passivation/release layer, wherein the absorption layer absorbs unwanted visible light;

and another one of the devices is at least one of a single light source, an array of lasers, and an array of light emitting diodes (LEDs), positioned to emit light directly to and at least partially through the active layer of the sensor.

27-28. (Cancelled)

29. (New) A hybrid device comprising:

a substrate;

a spring interconnect formed on the substrate, the spring interconnect including:

an elastic material that is operatively associated with a surface of the substrate including:

an anchor portion fixed to the substrate, and

a free portion; and

a sensor formed on the substrate, the sensor including an active layer and contacts, said active layer being capable of sensing light,

the spring interconnect and the sensor being integrated on the substrate.